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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/636,161	08/10/2000	SHUMIN WANG	98124X205487	6517

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EXAMINER

UMEZ ERONINI, LYNETTE T

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 01/14/2003

18

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/636,161

Applicant(s)

WANG ET AL.

Examiner

Lynette T. Umez-Eronini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-6,8,9,16-27 and 32-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8,9 and 16-27 is/are rejected.
- 7) ☒ Claim(s) 32-35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-6, 8, 9, and 16-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al (US 5,770, 095).

Sasaki teaches a polishing (system for polishing) agent (column 1, lines 6-10) comprising:

- (i) water (column 4, line 53);
- (ii) an oxidizing agent such as  $H_2O_2$  (column 4, line 3-5 and 53);
- (iii) a chemical agent (same as a polishing additive) such as phosphonic acids (column 3, line 49);
- (iv) chemical agents forming a protection film by reacting with a metal include benzotriazole and benzimidazole (column 3, lines 38-45; column 4, lines 50-53; column 8, lines 11-14 and 24), which are examples of applicant's passivation film forming agent; and
- (v) an abrasive (column 8, lines 5-10 and column 10, lines 10-16 and 43-46).

Sasaki differs in failing to teach in (iii) one polishing additive that increases the rate at which the system polishes at least one layer of the substrate, wherein the polishing additive is selected from the group consisting of pyrophosphates, condensed

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phosphates, di-, tri-, and poly- phosphonic acids, phosphonoacetic acids, and salts thereof, aminoethylethanolamine, polyethyleneimine, amino alcohols, amides, imines, imino acids, nitriles, nitros, thioesters, thioethers, carbothiolic acids, carbothionic acids, thiocarboxylic acids, thiosalicylic acids, and mixtures thereof, **in claim 1**.

Kaufman teaches a variety of optional additives such as stabilizers that are used to promote stabilization of the polishing slurry including oxidizing agents against settling, flocculation and decomposition and examples of a preferred a polishing slurry includes and are not limited to phosphonic acids such as aminotri(methylenephosphonic) acid and 1-hydroxyethylidene-4-diphosphonic acid that are examples of diphosphonic acids as claimed in the present invention (column 6, lines 40-55). Since Kaufman uses the same diphosphonic acids in a polishing slurry as that of the claimed invention, then using Kaufman's polishing additive in polishing a layer on a substrate would inherently increase the rate at which the system polishes at least one layer of the substrate as claimed in the present invention.

Hence, it is the examiner's position that it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to modify Sasaki's phosphonic acid with a diphosphonic acid as taught by Kaufman because both compounds are considered equivalent: they are phosphonic acids. Substituting one for the other would have been obvious for the purpose of promoting stabilization of polishing slurry against settling, flocculating, and decomposing (Kaufman, column 6, lines 39-42).

***Allowable Subject Matter***

3. Claims 32-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art fails to teach a polishing additive comprising iminodiacetic acid.

***Response to Arguments***

4. Applicant's arguments filed December 20, 2002 have been fully considered but they are not persuasive. Applicant traverses the 103 rejection of claims 1, 2-6, 8, 9, and 16-27 over Sasaki for failing to teach a polishing additive such as phosphonic acids. Applicant argues that Sasaki's phosphonic acid, which is hydrophobic, is not a polishing additives and not equivalent to those disclosed by Kaufman. Applicant further argues that unlike Sasaki's phosphonic acid, Kaufman's phosphonic acid compounds contain methylene or ethylene groups (no long alkyl chains or other hydrophobic groups) and multiple phosphonic acid groups, thus the phosphonic acid compound of Kaufman are not hydrophobic, but are substantially hydrophilic. Applicant's arguments are unpersuasive because the claimed invention does not require the polishing additive to be a hydrophobic- or hydrophilic- phosphonic acid nor specify the functional group(s) that are attached to the phosphonic acid.

Applicant traverses the reason to combine Sasaki and Kaufman. Applicant argues that one of ordinary skill in the art would not be motivated to take a phosphonic acid used to affect abrasive particle interactions (as taught by Kaufman) and use it to

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form a protective film in a method as taught by Sasaki. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the reason to combine is for the purpose of promoting stabilization of polishing slurry against settling, flocculating, and decomposing (Kaufman, column 6, lines 39-42).

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 703-306-9074. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-972-9310 for regular communications and 703-972-9311 for After Final communications.

ltue

January 12, 2003

  
BENJAMIN L. UTECH  
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